## AMENDMENT

IN THE CLAIMS

Please cancel claims 13-17, 21-24, 29, 30, 32-39, and 41-75, amend claims 1, 2, 4, 6-10, 12, 18-20, 25-28, 31, and 40, and add new claims 76-84, as follows.

1. (currently amended) A transfection agent ~~for the non-covalent association with and transport of a heterologous compound into a cell, said transfection agent~~ comprising~~:~~ a peptide of between about 16 ~~and~~ to 30 amino acid residues in length, said peptide comprising:

a) a hydrophobic domain comprising at least four amino acid residues, wherein the hydrophobic domain comprises a first hydrophobic locus spaced by at least one amino acid residue from a second hydrohpobic locus, wherein each of the first and second hydrophobic loci comprise one or more hydrophobic amino acid residues independently selected from the group consisting of Phe, Tyr, Trp, Thr, Met, Leu, Val, Ile, and Ala;

b) a hydrophilic domain comprising up to about 12 amino acid residues, wherein the hydrophilic domain comprises a plurality of basic amino acid residues;

c) optionally a spacer sequence between said hydrophobic and said hydrophilic domains, wherein said spacer comprises from between one to about ten amino acid residues; and

d) further optionally a functional group conjugated to one or more termini of said peptide.

2. (currently amended) The transfection agent of claim 1 wherein said hydrophobic domain ~~is characterized by~~ comprises a plurality of aromatic amino acid residues.

3. (original) The transfection agent of claim 1 wherein said hydrophilic domain is a cation-rich sequence comprised of at least two lysine residues within a span of seven residues.

4. (currently amended) The transfection agent of claim 2 wherein at least two of said plurality of aromatic amino acid residues occur in a pair in the first hydrophobic locus or the second hydrophobic locus.

5. (original) The transfection agent of claim 3 wherein two or more of said at least two lysine residues are adjacent to one another.

6. (currently amended) The transfection agent of claim 2 wherein said plurality of aromatic amino acid residues is between 3 and 5 aromatic amino acid residues inclusive.

7. (currently amended) The transfection agent of claim 2 wherein said plurality of aromatic amino acid residues comprises at least 2 tryptophan residues.

8. (currently amended) The transfection agent of claim 4 comprising two pairs of aromatic amino acid residues, the first pair being disposed in the first hydrophobic locus and the second pair being disposed in the second hydrophobic locus, and wherein said first and second hydrophobic loci are ~~pairs~~ separated by 2 amino acids.

9. (currently amended) The transfection agent of claim 8 wherein said 2 amino acids separating ~~said pairs~~ the first and second hydrophobic loci consist of hydrophilic amino acids.

10. (currently amended) The transfection agent of claim 9 wherein said hydrophilic amino acids separating ~~said pairs~~ the first and second hydrophobic loci are Glu and Thr.

11. (original) The transfection agent of claim 1 wherein said peptide is a synthetic peptide.

12. (currently amended) The transfection agent of claim 1, wherein said peptide comprises ~~one or more~~ an amino acid sequences selected from the group ~~of sequences~~ consisting of SEQ ID NO. 1 through 12.

13-17. (canceled)

18. (currently amended) The transfection agent of claim 1 wherein said optional spacer sequence comprises one or more amino acid residues selected from the group ~~of amino acids~~ consisting of proline, glycine, tyrosine, serine, glutamine, and non-charged amino acids.

19. (currently amended) The transfection agent of claim 1 wherein said hydrophobic domain comprises ~~the~~ a motif (Trp/Tyr)-(Trp/Tyr)-Xaa-Xaa-(Trp/Tyr)~~of SEQ ID NO: 18~~, wherein the first hydrophobic locus comprises two hydrophobic amino acid residues each independently selected from the group consisting of Trp and Tyr, the second hydrophobic locus comprises an amino acid residue selected from the group consisting of Trp and Tyr, and the first and second hydrophobic loci are spaced by two amino acids, Xaa-Xaa, wherein each Xaa ~~of said motif~~ is a hydrophilic amino acid~~, and wherein tyrosine (Tyr) may optionally be substituted for at least one of said tryptophan (Trp)~~.

20. (currently amended) The transfection agent of claim 1 wherein said agent is ~~used to transfect one or more members from the group of compounds consisting of peptides, proteins, antibodies, and derivatives and analogs thereof, and optionally wherein a distinct compound is~~ covalently affixed to a compound selected from the group consisting of a nucleic acid, a peptide, a protein, an antibody, and a derivatives or analog of any of the foregoing~~, and optionally wherein a distinct compound is said agent and is also transported into said cell~~.

21-24. (canceled)

25. (currently amended) The transfection agent of claim ~~22~~ 1 wherein said agent is non-covalently complexed with ~~said~~ a compound ~~prior to transfection~~ selected from the group consisting of a nucleic acid, a peptide, a protein, an antibody, and a derivatives or analog of any of the foregoing.

26. (currently amended) The transfection agent of claim 1 that further comprises a functional group ~~has said one or more~~ covalently attached ~~functional groups~~ to a terminus of said

peptide, wherein the functional group is selected ~~a member~~ from the group consisting of a cysteamine group, a methyl group, and an alkyl group~~is conjugated to a carboxy terminus of said peptide~~, and, with respect to the ~~wherein if a group is present on an~~ amino terminus of said peptide, ~~it is~~ an acyl group.

27. (currently amended) The transfection agent of claim 1 wherein said hydrophilic domain comprises the sequence Lys-Arg-Lys, and wherein said agent further comprises a ~~said~~ spacer sequence that comprises at least three amino acid residues of which at least one is a proline or glutamine residue.

28. (currently amended) The transfection agent of claim 1 that further comprises a functional group to which is covelently conjugated a molecule selected from the group consisting of a stabilizer, a coupler, a dye, a ligand, and an enzymatic substrate~~is effective to transfect cells of interest using molar ratios of agent:compound to be transfected of between 5:1 and 30:1~~.

29-30. (canceled)

31. (currently amended) A commercial transfection kit comprising at least one transfection agent according to claim 1 in either aqueous or lyophilized form, said kit further comprising one or more components selected from the group consisting of buffers, positive controls, cells to be transfected, phospholipids, and instructions for use~~; and wherein said agent is supplied either as an aqueous or lyophilized stock~~.

32-39. (canceled)

40. (currently amended) A pharmaceutical composition comprising a transfection agent according to claim 1 ~~or claim 31~~.

41-75. (canceled)

76. (new) The pharmaceutical composition of claim 40 wherein said transfection agent is non-covalently complexed with a compound to be delivered to a cell.

77. (new) The pharmaceutical composition of claim 76 wherein said compound comprises a member selected from the group consisting of a diagnostic compound and a therapeutic compound.

78. (new) The pharmaceutical composition of claim 77 wherein said compound is a therapeutic compound that is effective to treat one or more afflictions selected from the group consisting of cancer and infectious diseases.

79. (new) The pharmaceutical composition of claim 78 wherein said therapeutic compound is p53.

80. (new) The pharmaceutical composition of claim 76 wherein said compound targets a cancerous cell.

81. (new) The pharmaceutical composition of claim 76 wherein said compound targets a pathogen-infected cell.

82. (new) The pharmaceutical composition of claim 76 that is effective to transfect cells of interest using molar ratios of agent:compound of between 5:1 and 30:1.

83. (new) The pharmaceutical composition of claim 76 in aqueous form in which the compound is present at a concentration of between about 0.1 uM and about 100 uM.

84. (new) The pharmaceutical composition of claim 76 in aqueous form in which the compound is present at a molar concentration of between about 1 uM and about 20 uM.